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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



In Re Application of: Ben-Chang Sun : Art Unit: 2612
Filed: 22 January 2004 : Examiner: S. Yacob
Serial Number: 10/761,297 : Before the Board
For: USER PROGRAMMABLE : of Appeals
INPUT APPARATUS
WITH A KEYBOARD : Appeal No.

TRANSMITTAL LETTER ACCOMPANYING BRIEF ON APPEAL

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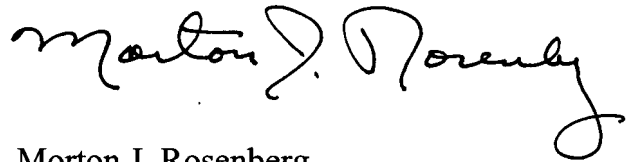
Applicant, by the undersigned Attorney hereby submits an Appeal Brief directed to the above-referenced Patent Application.

A Notice of Appeal was filed on 23 July 2007. The requisite fee for the filing of the Notice of Appeal was filed.

Attached to this Transmittal Letter and Appeal Brief is a check in the amount of \$255.00 in payment of the requisite fees for the filing of this Appeal Brief.

Additionally, being filed concurrently with this Appeal Brief is a Request for Extension of Time of one month with the requisite fee being paid for the filing of the Appeal Brief.

Respectfully submitted,
For: ROSENBERG, KLEIN & LEE

A handwritten signature in black ink, appearing to read "Morton J. Rosenberg". The signature is fluid and cursive, with the first name "Morton" and last name "Rosenberg" clearly distinguishable.

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APPEAL BRIEF

REAL PARTY IN INTEREST

Elan Microelectronics Corporation, the Assignee of record of the above-referenced Patent Application. The Assignment is recorded at the USPTO on Reel 14972/Frame 856.

RELATED APPEALS AND INTERFERENCES

A Notice of Appeal from the Examiner to the Board of Patent Appeals and Interferences related to the subject Patent Application was filed on 23 July 2007.

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STATUS OF CLAIMS

Claims allowed

None.

Claims objected to

None.

Claims rejected (See Claims of Appeal Appendix)

Claims 1, 2, 4, 5, 7-9, 13-16 and 23-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al. U.S. Patent No. 4,964,075 in view of Torok, U.S. Patent No. 5,458,425.

Claims 3, 6 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al., in view of Torok and further in view of Kuehneman, et al., U.S. Patent No. 4,688,020.

Claims 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al., in view of Torok and further in view of Criscione, U.S. Patent Application Publication No. 2004/0041792A1.

Claims pending

1-11, 13-16 and 22-26

Claims appealed

1-11, 13-16 and 22-26

Claims canceled

12 and 17-21

STATUS OF AMENDMENTS

A Response to Final Office Action was filed subsequent to the Final Rejection made in the Official Action dated 23 February 2007. The after final response was not entered.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Subject matter defined in Independent Claim 1

The invention relates to a user programmable input apparatus 10 (presented in Fig. 1, as well as introduced on page 5, line 17) with a keyboard 14 (presented in Fig. 1, as well as introduced on page 5, line 18).

The user programmable input apparatus 10 comprises:

- a plurality of keys 142 (presented in Figs. 1-2 as well as described on page 5, line 20, and page 8, line 7) disposed on the keyboard 14 for input operations;

- a microprocessor 12 (presented in Fig. 1, as well as on page 5, line 17) coupled to the plurality of keys 142 for receiving an input therefrom;

- a nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) coupled to the microprocessor 12 and programmable by operating the plurality of keys 142; and

- a transmission arrangement 16 (presented in Fig. 1, as well as on page 6, line 10) connected to the microprocessor 12 for outputting data external to the keyboard 14;

wherein the plurality of keys 142 includes a set of special control keys 14212 (presented in Fig. 2, as well as on page 8, lines 17-20, and on page 10, lines 4-10) programmable to simulate a cursor control device (presented in Fig. 2, as well as on page 8, lines 18-19, and on page 10, lines 4-6), the set of special control keys 14212 being programmable to have a different report rate (as presented on page 8 lines 21-24, and page 10, lines 6-10) from that of the other of the plurality of keys to coincide with requirements of a cursor control device.

Subject matter defined in dependent Claim 2

The user programmable input apparatus 10 in which the microprocessor 12 (presented in Fig. 1, as well as on page 5, line 17) and the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) are integrated in a single chip (as presented in Fig. 1, as well as on page 5, lines 16-18).

Subject matter defined in dependent Claim 3

The user programmable input apparatus 10 in which the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) is programmed with a user programmable password (presented as “HK3 USED PASSWORD” in programming table 12202 in Fig. 1, as well as on page 5, line 24 – page 6, line 2, and as a password key 14210 in Fig. 2, as well as on page 8, lines 12-15).

Subject matter defined in dependent Claim 4

The user programmable input apparatus 10 in which the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) is programmed

with a user programmable hot key (14202, 14204, 14206, 14208, presented in Fig. 2, as well as on page 5, line 24 – page 6, line 2, and page 8, lines 10-12).

Subject matter defined in dependent Claim 5

The user programmable input apparatus 10 in which the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) is programmed with a user programmable data (presented on page 6, lines 7-9).

Subject matter defined in dependent Claim 6

The user programmable input apparatus 10 in which the plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, line 20, and page 8, line 7) include a key 14210 (presented in Fig. 2, as well as on page 8, lines 12-14) to program the password.

Subject matter defined in dependent Claim 7

The user programmable input apparatus 10 in which the plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, line 20, and page 8, line 7) include a key 14200 (presented in Fig. 2, as well as on page 9, lines 2-7) to program the hot key 14202-14208 (presented in Fig. 2, as well as on page 9, lines 4-5).

Subject matter defined in dependent Claim 8

The user programmable input apparatus 10 in which the plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, line 20, and page 8, line 7) include a key 14200 (presented in Fig. 2, as well as on page 9, lines 2-7, 15-20) to program the data.

Subject matter defined in dependent Claim 9

The user programmable input apparatus 10 in which the plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, lines 20, and page 8, line 7) include a key 14200 (presented in Fig. 2, as well as on page 9, lines 2-4) to initialize a programming procedure of the nonvolatile memory.

Subject matter defined in dependent Claim 10

The user programmable input apparatus 10 in which the cursor control device (presented in Fig. 2, as well as on page 8, lines 17-19, and page 10, lines 4-7) simulated by the set of special control keys 14212 (presented in Fig. 2, as well as on page 10, lines 4-6) is a mouse (presented on page 10, lines 6-10).

Subject matter defined in dependent Claim 11

The user programmable input apparatus 10 in which the cursor control device (presented in Fig. 2, as well as on page 8, lines 17-19, and page 10, lines 4-7) simulated by the set of special control keys 14212 (presented in Fig. 2, as well as on page 10, lines 4-6) is a joystick (presented on page 10, lines 6-10).

Subject matter defined in dependent Claim 13

The user programmable input apparatus 10 in which at least one of the set of special control keys 14212 (presented in Fig. 2, as well as on page 10, lines 4-6) is programmable to simulate one of the other of the plurality of keys (presented on page 8, lines 19-21).

Subject matter defined in dependent Claim 14

The user programmable input apparatus 10 in which at least one special control key 14212 (presented in Fig. 2, as well as on page 8, line 21) has a predetermined report rate different from that of the key being simulated (as presented on page 8, lines 19-24).

Subject matter defined in dependent Claim 15

The user programmable input apparatus 10 in which the plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, line 20, and page 8, line 7) are operated to change a key mapping (presented in Fig. 1, as well as on page 6, lines 2-6) by programming the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18).

Subject matter defined in dependent Claim 16

The user programmable input apparatus 10 in which the nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) is programmed with a command thereto by operating the plurality of keys (presented on page 6, lines 2-9).

Subject matter defined in dependent Claim 22

The user programmable input apparatus 10 in which a display 18 (presented in Fig. 1, as well as on page 6, lines 13-16) is connected to the microprocessor 12 (presented in Fig. 1, as well as on page 5, line 17) to display a content stored in the nonvolatile memory 122 (presented in Fig. 1, as well as on page 6, lines 13-15).

Subject matter defined in dependent Claim 23

The user programmable input apparatus 10 in which an application software program 22 (presented in Fig. 1, as well as on page 6, lines 16-19) executing external to the keyboard 14 (presented in Fig. 1, as well as on page 5, line 18) to communicate with the microprocessor 12 (presented in Fig. 1, as well as on page 6, lines 10-13).

Subject matter defined in dependent Claim 24

The user programmable input apparatus 10 in which the application software program 22 (presented in Fig. 1, as well as on page 6, lines 19-22) is used to program the nonvolatile memory 122 (presented in Fig. 1, as well as on page 6, lines 19-20).

Subject matter defined in dependent Claim 25

The user programmable input apparatus 10 in which the application software program 22 (presented in Fig. 1, as well as on page 6, lines 19-22) is used to perform a function programmed in the nonvolatile memory 122 (presented in Fig. 1, as well as on page 6, lines 20-22).

Subject matter defined in Independent Claim 26

The invention relates to a method for operating a user programmable input apparatus 10 (presented in Fig. 1, as well as on page 5, line 17) with a keyboard 14 (presented in Fig. 1, as well as on page 5, line 18), wherein the keyboard 14 has a microprocessor 12 (presented in Fig. 1, as well as on page 5, line 17), a

nonvolatile memory 122 (presented in Fig. 1, as well as on page 5, lines 17-18) and a transmission arrangement 16 (presented in Fig. 1, as well as on page 6, line 10), and a plurality of keys 142 (presented in Figs. 1-2, as well as on page 5, line 20, and page 8, line 7) and at least one special key 14212 (presented in Fig. 2, as well as on page 8, lines 17-20, and on page 10, lines 4-10). The method comprises the steps of:

detecting a trigger signal (as presented on page 6, line 24 – page 7, line 1) of a key 142 of the keyboard 14;

storing a first data (as presented on page 7, lines 2-4) into the nonvolatile memory 122 when the trigger signal is a programming signal;

transmitting a normal data (as presented on page 7, lines 6-8) corresponding to the trigger signal external to the keyboard by the transmission arrangement 16 when the trigger signal is a normal keying signal (as presented on page 7, lines 6-10);

reading a second data corresponding to a programmed key from the nonvolatile memory and/or executing a function corresponding to the second data when the trigger signal matches the programmed key (as presented on page 7, lines 11-15); and

programming the special key 14212 to simulate a cursor control device (as presented in Fig. 2, as well as on page 8, lines 18-19, and page 10, lines 4-6) and changing a reporting rate of the special key 14212 to be different from that of other of the plurality of keys 142 to coincide with the requirements of the

cursor control device (as presented on page 8, lines 21-24, and page 10, lines 6-10).

As discussed in the Specification, and as presented in the Patent Drawings of the subject Patent Application, the user programmable input apparatus with a keyboard provides an improvement over the prior art input apparatuses in that it attains a flexibility and multi-functionality of the subject input apparatus in a broad range of applications by permitting a user to define functions of the keys on the keyboard as well as by reprogramming a non-volatile memory (including mapping of the keys on the keyboard and their functions) of the input device by operating the keys on the keyboard to introduce specific commands and instructions. In this manner, a functionality of the input device needed by the user is flexibly defined and redefined when needed.

To provide the benefit of the flexible functionality, the user programmable input apparatus is integrated with the keyboard and includes a plurality of keys disposed on the keyboard for input operations. The input apparatus includes a microprocessor coupled to the plurality of keys for receiving an input therefrom. Further, the input apparatus includes a non-volatile memory coupled to the microprocessor and is programmable by operating the plurality of keys. Still further, the input apparatus includes a transmission arrangement coupled to the microprocessor for outputting data external thereto.

The plurality of keys includes a set of special control keys programmable to simulate a cursor control device. The set of special control keys is programmable

to have a different report rate from that of the other of the plurality of keys to coincide with the requirements of the cursor control device.

The microprocessor receives an input from the keyboard when any key thereon is operated, and thus programs the non-volatile memory as instructed by the user through the keyboard. The programmed content of the non-volatile memory is stored in a programming table.

The non-volatile memory may be programmed either by entering a password, or operating hot keys on the keyboard, or by executing the instructions stored in the programming table, as instructed by the user through the keys on the keyboard.

Additionally, the user may change the mapping of the keys on the keyboard by directly programming the non-volatile memory, e.g., the functions of the keys may be redefined by the user reprogramming the non-volatile memory by operating the keys on the keyboard. The non-volatile memory may be also reprogrammed by means of user-specified instructions and/or commands entered through the keys on the keyboard.

In operation, the microprocessor detects a trigger signal from the keyboard. If the detected trigger signal is a programming signal received from the special key, the microprocessor then begins to process the programming procedure to program the nonvolatile memory in order either store new data, or program into nonvolatile memory, or to modify the current data of the nonvolatile memory. Alternatively, if the trigger signal from the keyboard 14 is detected to be a regular

key input, the microprocessor transmits the data corresponding to that regular key to an outside computer system via a transmission arrangement. Otherwise, if the trigger signal from the keyboard matches a key previously programmed in the nonvolatile memory, then the microprocessor executes the process corresponding to the programmed content in the nonvolatile memory. The microinstructions (or system programs) for the microprocessor to control its operations may be stored in a read-only memory (ROM). However, preferably, the microinstructions of the microprocessor may be stored in the nonvolatile memory. By reprogramming the non-volatile memory, the functions of the microprocessor may be modified or updated, and new functions may be added by updating the microinstructions (or system programs) of the microprocessor.

The set of special keys on the keyboard constitutes the input key setting to indicate the beginning and ending of the trigger signal to program the nonvolatile memory. During the programming of the nonvolatile memory, several hot keys are used as the keys to be programmed.

A password key also is provided for users to actuation before they type the password to be programmed into the nonvolatile memory. By programming a password in the nonvolatile memory, an encryption system is established in the input apparatus for the external computer system or for the start-up operation of the input apparatus itself.

A set of special control keys is further provided to simulate a cursor control device, such as, a mouse, a joystick, or a computer peripheral. The simulation

performed on the special control keys may be also applied for any one of the keys on the keyboard. Specifically, one of the control keys may be programmed to have a report rate different from that of the other simulated keys to comply with the requirements of the cursor control device.

Due to such an arrangement, the user may use the keys on the keyboard of the input apparatus to define and alter the functions of the keys as preferred by the user by programming the non-volatile memory and the keys mapping through actuating the keys on the keyboard. The inventive input apparatus in this fashion is designed with the enhanced flexibility of operation and multi-functionality so that the present input apparatus may be used for different purposes and for different applications.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner rejected Claims 1, 2, 4, 5, 7-9, 13-16 and 23-26 under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al., U.S. Patent No. 4,964,075 in view of Torok, U.S. Patent No. 5,458,425.

The Examiner rejected Claims 3, 6 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al. (above) in view of Torok (above) and further in view of Kuehneman, et al., U.S. Patent No. 4,688,020.

The Examiner rejected Claims 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al. (above) in view of Torok (above) and further in view of Criscione, U.S. Patent Application Publication No. 2004/0041792.

ARGUMENT

Rejection under 35 U.S.C. § 103(a) over Shaver, et al., U.S. Patent No. 4,964,075, in view of Torok, U.S. Patent No. 5,458,425.

Claim 1

Regarding the Independent Claim 1, the Examiner states that Shaver, et al., discloses a user programmable input apparatus with a keyboard comprising a plurality of keys disposed on the keyboard for input operations (Col. 6, lines 16-34; Item 19 of Figs. 1b and c; Item 22 of Figs. 2 and 3), a microprocessor coupled to the plurality of keys for receiving an input from the plurality of keys (Item 30 of Fig. 3), a nonvolatile memory coupled to the microprocessor (Col. 10, lines 27-28; Item 32 of Fig. 2) and programmable by operating the plurality of keys (Col. 10, lines 39-68; Col. 11, lines 1-3), and a transmission arrangement connected to the microprocessor for outputting data external to the keyboard (Col. 11, lines 3-8). The Examiner further interpreted the plurality of keys as including a set of special control keys (Item 25 of Figs. 2 and 3) programmable to simulate an output of a conventional keyboard (Col. 11, lines 20-22).

The Examiner admitted that Shaver, et al., does not expressly disclose wherein the plurality of keys includes a set of special control keys programmable to simulate a cursor control device, the set of special control keys being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device.

The Examiner, however, cited Torok as a user programmable keyboard comprising a set of special control keys programmable to simulate a cursor control device. The Examiner stated that in Torok the set of special control keys is being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device. The Examiner therefore concludes that a person skilled in the art would have been motivated to combine Shaver, et al. and Torok in order to have a user programmable input apparatus with a keyboard comprising a plurality of keys disposed on the keyboard for input operations, a microprocessor coupled to the plurality of keys for receiving an input from the plurality of key, a nonvolatile memory coupled to the microprocessor and programmable by operating the plurality of keys, and a transmission arrangement connected to the microprocessor for outputting data external to the keyboard, wherein the plurality of keys includes a set of special control keys programmable to simulate a cursor control device, the set of special control keys being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, because both trying to solve similar problem and Torok suggests the user programmable keyboard could be implemented as a complete keyboard of a single package.

Claim 1 is patentable over Shaver, et al. in view of Torok.

It is respectfully submitted that the Shaver, et al. reference is directed to a software and hardware independent auxiliary user programmable intelligent keyboard that defines a User Programmable Keyboard Entry Device (UPKED). The device is an add-on accessory that is coupled between a conventional keyboard 11 and a computer system 15, as shown in Fig. 1B.

The UPKED 19 includes a plurality of MACRO keys 25, a Shift key 24 and a programming time delay key 36 that are coupled to the microprocessor 30 through the decoder 33. The microprocessor 30 is coupled to memory in the form of ROM 31 containing the operating system for the UPKED and a battery backed-up RAM 32 in which a plurality of keystroke sequences are stored in correspondence to respective MACRO keys 25.

As each MACRO key 25 is associated with a particular sequence of keystrokes, the greater the number of keys 25 on the keypad of the UPKED, the greater the number of individual sets of keyboard keystroke sequences that can be stored. Col. 10, lines 65-68. However, the plurality of keys on the keypad provide the means for reading and output of the keystroke sequences to the computer 15, but NOT to program the nonvolatile memory.

The reference clearly discloses the programming of the nonvolatile memory, associating the stored keystroke sequences with particular MACRO keys in the Programming Mode, using the keyboard 11. The reference states "... [t]o program any selected MACRO key, the user moves the 'RUN/PROGRAM'

switch 27 to the 'PROGRAM' position. He/she then strikes the MACRO key 25 which is to be programmed and, on the regular keyboard, types out the keyboard keystroke sequence (hereinafter, a MACRO statement) in a normal manner. "As the MACRO statement is being typed, the UPKED both records the data in its non-volatile memory ..." (emphasis added), Col. 8, lines 48-54.

Therefore, nowhere does the reference disclose or suggest a nonvolatile memory programmable by operating the plurality of keys, which keys are on the keyboard of the programmable input apparatus, as has been claimed. In fact, the reference teaches away from that structure. The UPKED of the reference does not have keys for input of keystrokes to be stored in the nonvolatile memory, but instead is programmed by using the operating keys on another keyboard, the keyboard 11.

Additionally, as admitted by the Examiner, the Shaver, et al. reference fails to disclose or suggest the inclusion of special control keys that are programmable to simulate a cursor control device with a different report rate from that of the other keys to coincide with requirements of a cursor control device.

The Torok reference does not overcome the deficiencies of Shaver, et al. The Torok reference is directed to a keyboard for touch type editing. In order to increase typing speed, the reference provides a keyboard with function keys F11 and F12 located so that they can be activated by a user's thumbs, without substantial arm movement. In particular, the function keys F11 and F12 are "programmed to execute a series of commands with one keystroke," i.e. F11 may

be programmed to move the cursor eight spaces to the left, and F12 programmed to move the cursor eight spaces to the right, Col. 9, lines 27-37.

Thus, contrary to the Examiner's interpretation, Torok discloses moving the cursor using keyboard control codes, encoding multiple space, backspace, or left and right arrow key keystrokes in the specified function keys. Nowhere does this reference disclose or suggest programming those keys or any keys to be programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, as has been claimed.

Additionally, the ability to move the cursor by operating keyboard keys, such as the arrow keys, space key and backspace key is well known, but is not a simulation of a cursor control device. Such keyboard keys are operated at the same report rate as any of the alphanumeric keys of the keyboard. Whereas a cursor control device, such as a mouse or trackball, require a higher report rate than a conventional character key, in order to update the cursor position as the cursor control device is operated. As opposed to the claimed apparatus, Torok stores a sequence of cursor displacement command keystrokes, but does not disclose any change in the report rate.

The distinguishing features of the present invention, over the cited Shaver, et al. and Torok, taken solely or in combination, are presented by the Applicant as they are clearly emphasized (among other inventive elements) in Claim 1 of the present Patent Application.

Specifically, Claim 1 recites (inter alia):

“... a set of special control keys programmable to simulate a cursor control device, the set of special control keys being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device.”

It is respectfully submitted that these features have not been found in Shaver, et al. or Torok, singly or in combination.

Therefore, as neither Shaver, et al., nor Torok disclose or suggest the concatenation of elements which forms the invention of the subject Patent Application, their combination does not make obvious that invention.

Claim 2

The Examiner states that, as to claim 2, Shaver, et al. discloses wherein the microprocessor and nonvolatile memory are integrated in a chip (Col. 10, Lines 44-46).

Claim 2 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al. as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 2 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous

paragraphs. Therefore claim 2 is believed to be patentable for at least the same reasons previously discussed.

Claim 4

The Examiner states that, as to Claim 4, Shaver, et al. discloses wherein the nonvolatile memory is programmed with a user programmable hot key (Col. 8, lines 27-28; Item 25 of Figs. 2 and 3).

Claim 4 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 4 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 4 is believed to be patentable for at least the same reasons previously discussed.

Claim 5

The Examiner states that, as to claim 5, Shaver, et al. discloses wherein the nonvolatile memory is programmed with a user programmable data (Col. 6, lines 24-34).

Claim 5 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 5 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 5 is believed to be patentable for at least the same reasons previously discussed.

Claim 7

The Examiner states that, as to claim 7, Shaver, et al. discloses wherein the plurality of keys includes a special key to program the hot key (Col. 8, lines 41-43; Item 27 of Figs. 2 and 3).

Claim 7 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 7 is directly dependent on independent claim 1, and therefore include the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 7 is believed to be patentable for at least the same reasons previously discussed.

Claim 8

The Examiner states that, as to claim 8, Shaver, et al. discloses wherein the plurality of keys includes a special key to program the data (Col. 8, lines 27-28; Item 25 of Figs. 2 and 3).

Claim 8 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 8 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 8 is believed to be patentable for at least the same reasons previously discussed.

Claim 9

The Examiner states that, as to claim 9, Shaver, et al. discloses wherein the plurality of keys includes a special key to initialize a programming procedure of the nonvolatile memory (Col. 8, lines 41-43; Item 27 of Figs. 2 and 3).

Claim 9 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 9 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 9 is believed to be patentable for at least the same reasons previously discussed.

Claim 13

The Examiner states that, as to claim 13, Shaver, et al. discloses wherein the plurality of keys includes a special key to simulate one of the plurality of keys (Col. 6, lines 61-68; Col. 7, lines 1-6).

Claim 13 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 13 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 13 is believed to be patentable for at least the same reasons previously discussed.

Claim 14

The Examiner states that, as to claim 14, Shaver, et al. discloses wherein the special control key has a predetermined report rate different from that of the simulated key (Col. 11, lines 41-68; Col. 12, lines 1-16).

Claim 14 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 14 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 14 is believed to be patentable for at least the same reasons previously discussed.

Claim 15

The Examiner states that, as to claim 15, Shaver, et al. discloses wherein the plurality of keys are operated to change a key mapping by programming the nonvolatile memory (Col. 8, lines 44-48; Col. 9, lines 5-45).

Claim 15 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 15 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 15 is believed to be patentable for at least the same reasons previously discussed.

Claim 16

The Examiner states that, as to claim 16, Shaver, et al. discloses wherein the nonvolatile memory is programmed with a command thereto by operating the plurality of keys (Col. 8, lines 48-57).

Claim 16 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 16 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 16 is believed to be patentable for at least the same reasons previously discussed.

Claim 23

The Examiner states that, as to claim 23, Shaver, et al. discloses the input apparatus further comprising an application software program executing outside the input apparatus to communicate with the input apparatus (Col. 8, lines 48-60).

Claim 23 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 23 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 23 is believed to be patentable for at least the same reasons previously discussed.

Claim 24

The Examiner states that, as to claim 24, Shaver, et al. discloses wherein the application software program is used to program the nonvolatile memory (Col. 8, lines 41-67).

Claim 24 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 24 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 24 is believed to be patentable for at least the same reasons previously discussed.

Claim 25

The Examiner states that, as to claim 25, Shaver, et al. discloses wherein the application software program is used to perform a function programmed in the nonvolatile memory (Col. 8, lines 41-67; Col. 9, lines 1-7).

Claim 25 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 25 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 25 is believed to be patentable for at least the same reasons previously discussed.

Claim 26

The Examiner states that, as to the Independent claim 26, Shaver, et al., discloses a method for operating a user programmable input apparatus with a keyboard (Col. 6, lines 16-34), the keyboard having a microprocessor (Col. 10, lines 27-28), a nonvolatile memory (Col. 6, lines 24-34; Col. 10, line 39 – Col. 11, line 3) and a transmission arrangement (Col. 11, lines 4-8), the keyboard having a plurality of keys and at least one special key (Item 25 of Figs. 2 and 3), the method comprising the steps of detecting a trigger signal of a key of the keyboard (Col. 10, lines 58-64), storing a first data into the nonvolatile memory when the trigger signal is a programming signal (Item 27 is moved to a “PROGRAM” mode is a programming signal), transmitting a normal data corresponding to the trigger signal external to the keyboard by the transmission arrangement when the trigger signal is normal keying signal (Item 27 is moved to a “RUN” mode is a normal

keying signal), reading a second data corresponding to a programmed key from the nonvolatile memory and/or executing a function corresponding to the second data when the trigger signal matches the programmed key (Col. 8, line 41 – Col. 9, line 7), and programming the special key to simulate an output of a conventional keyboard (Col. 11, lines 20-22).

The Examiner admits that Shaver, et al. fails to teach programming the special key to simulate a cursor control device and changing a reporting rate of the special key to be different from that of other of the plurality of keys to coincide with requirements of the cursor control device.

The Examiner suggests that in the keyboard for touch type editing field of endeavor, Torok discloses a method for operating a user programmable input apparatus with a keyboard (Figs. 3-5), and programming the special key to simulate a cursor control device (Items 59 and 61 of Fig. 4) and changing a reporting rate of the special key to be different from that of other of the plurality of keys to coincide with requirements of the cursor control device (Col. 9, lines 27-38).

The Examiner thus asserts that a person skilled in the art would have been motivated to combine Shaver, et al. and Torok in order to have a method for operating a user programmable input apparatus with a keyboard, a microprocessor, a nonvolatile memory and a transmission arrangement, wherein the method is performed by comprising the steps of detecting a trigger signal of a key of the keyboard, storing a first data into the nonvolatile memory when the trigger signal

is a programming signal, transmitting a normal data corresponding to the trigger signal external to the keyboard by the transmission arrangement when the trigger signal is a normal keying signal, reading a second data corresponding to a programmed key from the nonvolatile memory and/or executing a function corresponding to the second data when the trigger signal matches the programmed key, and programming the special key to simulate a cursor control device and changing a reporting rate of the special key to be different from that of other of the plurality of keys to coincide with requirements of the cursor control device, because both trying to solve similar problem and Torok suggests the method for operating a user programmable keyboard could be implemented as a complete keyboard of a single package (Col. 9, lines 39-46).

Claim 26 is patentable over Shaver, et al. in view of Torok.

The arguments related to differences between Shaver, et al., as well as Torok, and the present method for operating a user programmable input apparatus are submitted in the previous paragraphs. These arguments are fully applicable in this section.

Nowhere do Shaver, et al. or Torok, considered solely or in combination, teach a "... method for operating a user programmable input apparatus with a keyboard ..." wherein "... the keyboard ..." has "... a plurality of keys and at least one special key, the method comprising the steps of ...

programming the special key to simulate a cursor control device and changing a reporting rate of the special key to be different from that of other of the

plurality of keys to coincide with requirements of the cursor control device,” which steps are clearly emphasized (inter alia) in the Independent claim 26.

These features of the present method have not been found in Shaver, et al. or Torok, singly or in combination.

Therefore, as neither Shaver, et al., nor Torok disclose or suggest the combination of elements which forms the invention of the subject Patent Application their combination does not make obvious the invention claimed in the Independent claim 26.

Rejection of Claims 3, 6 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al. (above) in view of Torok (above) and further in view of Kuehneman, et al., U.S. Patent No. 4,688,020.

Claim 3

The Examiner admits that the combination of Shaver, et al., and Torok does not expressly disclose wherein the nonvolatile memory is programmed with a user programmable password.

The Examiner, however, cites Kuehneman, et al. as disclosing the nonvolatile memory programmed with a password to protect a key table for reconfigurable keyboard (Col. 13, lines 7-15; Col. 14, lines 58-68; Col. 15, lines 1-9; and Fig. 10).

The Examiner concluded that it would have been obvious to one skilled in the art, at the time of the invention, to modify the user programmable input apparatus with a keyboard of Shaver, et al., and Torok by incorporating the

nonvolatile memory programmed with a password, as disclosed by Kuehneman, et al., in order to have a user programmable input apparatus with a keyboard, wherein the nonvolatile memory is programmed with a user programmable password, because Kuehneman, et al., discloses a nonvolatile memory programmed with a password to protect a key table for reconfigurable keyboard and one skilled in the art realizes incorporating a user programmable password will ensure the program for the input device would not be changed by accident or by unauthorized user.

Claim 3 is patentable over Shaver, et al. in view of Torok and further in view of Kuehneman, et al.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Kuehneman, et al. Patent

The Kuehneman, et al. reference does not overcome the deficiencies of Shaver, et al. in view of Torok. The Kuehneman, et al. reference is directed to a reconfigurable keyboard wherein selected ones of a plurality of key switches are connected to covers for operating those particular key switches, when others of the key switches are left inoperable. The device includes a plurality of key tables, any one of which may be selected to control the output of the keyboard and define the functions of each of the operable keys which have been coupled to key covers.

However, nowhere does the reference disclose or suggest the inclusion of a set of special control keys that are programmable to simulate a cursor control device, the set of special control keys being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, as claimed.

Claim 3 is directly dependent on the Independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 3 is believed to be patentable, in addition to those structural and functional differences with the cited reference, for at least the same reasons previously discussed.

Claim 6

The Examiner states that, as to claim 6 Shaver, et al., and Torok do not expressly disclose wherein the plurality of keys includes a special key to program the password. The Examiner suggests that Kuehneman, et al. Patent discloses a special key that is a password key (Col. 10, lines 18-33).

The Examiner concludes that it would have been obvious, to one skilled in the art, at the time of the invention, to modify the user programmable input apparatus with a keyboard of Shaver, et al., and Torok by incorporating the password key, as disclosed by Kuehneman, et al., in order to have a user programmable input apparatus with a keyboard, wherein the plurality of keys includes a special key to program the password, because Shaver, et al., discloses a nonvolatile memory is programmed for use with an input device of special keys

that may be labeled by the user (Col. 8, lines 39-67) and Kuehneman, et al., discloses a nonvolatile memory is programmed with a password to protect a key table for reconfigurable keyboard and a password key. The Examiner states that a person skilled in the art realizes having a dedicated special key to program the password to a nonvolatile memory would be desirable to change the user password without changing the program for the rest of the programmed keys.

Claim 6 is patentable over Shaver, et al. in view of Torok and further in view of Kuehneman, et al.

The arguments related to differences between Shaver, et al., Torok, as well as Kuehneman, et al. and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 6 is dependent on the Independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 6 is believed to be patentable for at least the same reasons as previously discussed.

Claim 22

The Examiner states that as to Claim 22, Kuehneman, et al., discloses the input apparatus further comprising a display connected to the microprocessor to display a content stored in the nonvolatile memory (Col. 14, lines 58-68; Col. 15, lines 1-9).

Claim 22 is patentable over Shaver, et al. in view of Torok, and further in view of Kuehneman, et al.

The arguments related to differences between Shaver, et al., Torok, as well as Kuehneman, et al. and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Claim 22 is directly dependent on independent claim 1, and therefore includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claim 22 is believed to be patentable for at least the same reasons previously discussed.

Rejection of Claims 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Shaver, et al., in view of Torok and further in view of Criscione, U.S. Patent Application Publication 2004/0041792.

The Examiner admits that Shaver, et al. does not expressly disclose wherein the plurality of keys includes a special key to simulate a mouse and a joystick. The Examiner, however, cites Criscione as disclosing a plurality of keys that include special keys to simulate a mouse and a joystick (Page 1, Par. 0002-0003; Page 2, Par. 0023).

The Examiner concludes that it would have been obvious to one skilled in the art, at the time of the invention, to modify the user programmable input apparatus with a keyboard of Shaver, et al., by incorporating the plurality of keys which include a special key to simulate a mouse and a joystick, as disclosed by

Criscione, in order to have a user programmable input apparatus with a keyboard, wherein the plurality of keys includes a special key to simulate a mouse and a joystick, because Shaver, et al., discloses a nonvolatile memory is programmed for use with an input device of special keys that may replace a regular keyboard by simulating the keyboard keys and control functions and Criscione discloses a plurality of keys which include a special key to simulate a mouse and a joystick. The Examiner suggests that one skilled in the art realizes having a special keys incorporated in the programmable input device would minimize the number of hardware devices.

Claims 10 and 11 are patentable over Shaver, et al., in view of Torok and further in view of Criscione.

The arguments related to differences between Shaver, et al., as well as Torok, and the present user programmable input apparatus with a keyboard are submitted in previous paragraphs. These arguments are fully applicable in this section.

Criscione Patent Application Publication

Criscione reference does not overcome the deficiencies of Shaver, et al. The Criscione reference is directed to a keyboard input device which is operated by a single hand. The keyboard 101 includes a key area 203 with a plurality of keys thereon. The device includes a motion detector 102 to provide cursor control input when the user manipulates the keypad 101, or a first portion 209 of the device relative to a base 202 thereof. Thus, the device includes a motion sensor

similar to that of any conventional mouse, whereby the keyboard device is physically displaced in order to provide cursor control. Thus, nowhere does the reference disclose or suggest any special control keys that are programmable to simulate a cursor control device, the set of special control keys being programmable to have a different rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, as now claimed. In fact, the reference teaches away from such a structure, in that rather than providing any special control keys for cursor control, the reference discloses the inclusion of a motion sensor which is used to sense the physical displacement of the entire keypad, or a portion 209 relative to a base 202 (paragraph 56).

Therefore, as neither Shaver, et al., Torok, nor Criscione taken solely or in any combination disclose the concatenation of elements which form the invention of the subject Patent Application, and in fact teach away from that combination, they cannot make obvious that invention.

Claims 10 and 11 are directly dependent on independent claim 1, and therefore each includes the limitations that are cited in claim 1 and are discussed in the previous paragraphs. Therefore claims 10 and 11 are believed to be patentable, in addition to those structural and functional differences with the cited references, for at least the same reasons previously discussed.

Conclusion

In summation, the Applicant submits that in the arrangement propounded by the Examiner as a basis for rejection of the Claims:

1. None of the references, Shaver, et al. and Torok, either alone or in combination, disclose or suggest a user programmable input apparatus with a keyboard in which a nonvolatile memory is programmable by operating the plurality of keys of the keyboard, in which the plurality of keys on the keyboard includes a set of special control keys programmable to simulate a cursor control device, and in which the set of special control keys is programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of the cursor control device, as claimed in the Independent claim 1, and in the dependent claims 2, 4, 5, 7-9, 13-16 and 23-26 of the subject Patent Application.

2. None of the references, Shaver, et al. and Torok, either singly or in combination, disclose or suggest a method for operating a user programmable input apparatus with a keyboard having a plurality of keys and at least one special key by programming the special key to simulate a cursor control device and changing a reporting rate of the special key to be different from that of other of the plurality of keys to coincide with requirements of the cursor control device, as claimed in the Independent claim 26 of the Applicant's Patent Application.

3. None of the references, Shaver, et al., Torok, and Kuehneman, et al., either sole or in any combination, disclose, suggest, or render obvious the input

apparatus having a set of special control keys programmable to simulate a cursor control device and also programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, as claimed in the dependent claims 3, 6 and 22.

4. None of the references, Shaver, et al., Torok, and Criscione, either alone or in any combination, teach, suggest, or render obvious the input apparatus having special control keys that are programmable to simulate a cursor control device and also programmable to have a different rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device, as claimed in the dependent claims 10 and 11.

For all of the foregoing reasons, Appellant respectfully submits that the invention as disclosed and claimed is patentably distinct from the cited Prior Art; and that the Claims of the Appeal are allowable. The Appellant therefore requests that the Examiner's rejection of the appealed Claims be reversed.

In the event there are any further charges associated with the filing of this Appeal Brief, the Honorable Commissioner of Patents may charge Deposit Account #18-2011 for such charges.

Respectfully submitted,
For: ROSENBERG, KLEIN & LEE

A handwritten signature in cursive script, appearing to read "Morton J. Rosenberg".

Morton J. Rosenberg
Attorney for Applicant/Appellant

Dated: 10/19/07

APPENDICES

CLAIMS OF APPEAL APPENDIX

Listing of Claims:

Claim 1. A user programmable input apparatus with a keyboard, comprising:

a plurality of keys disposed on the keyboard for input operations;

a microprocessor coupled to the plurality of keys for receiving an input therefrom;

a nonvolatile memory coupled to the microprocessor and programmable by operating the plurality of keys; and

a transmission arrangement connected to the microprocessor for outputting data external to the keyboard;

wherein the plurality of keys includes a set of special control keys programmable to simulate a cursor control device, the set of special control keys being programmable to have a different report rate from that of the other of the plurality of keys to coincide with requirements of a cursor control device.

Claim 2. The input apparatus of claim 1, wherein the microprocessor and nonvolatile memory are integrated in a single chip.

Claim 3. The input apparatus of claim 1, wherein the nonvolatile memory is programmed with a user programmable password.

Claim 4. The input apparatus of claim 1, wherein the nonvolatile memory is programmed with a user programmable hot key.

Claim 5. The input apparatus of claim 1, wherein the nonvolatile memory is programmed with a user programmable data.

Claim 6. The input apparatus of claim 3, wherein the plurality of keys include a key to program the password.

Claim 7. The input apparatus of claim 4, wherein the plurality of keys include a key to program the hot key.

Claim 8. The input apparatus of claim 5, wherein the plurality of keys include a key to program the data.

Claim 9. The input apparatus of claim 1, wherein the plurality of keys include a key to initialize a programming procedure of the nonvolatile memory.

Claim 10. The input apparatus of claim 1, wherein the cursor control device simulated by the set of special control keys is a mouse.

Claim 11. The input apparatus of claim 1, wherein the cursor control device simulated by the set of special control keys is a joystick.

Claim 13. The input apparatus of claim 1, wherein at least one of the set of special control keys is programmable to stimulate one of the other of the plurality of keys.

Claim 14. The input apparatus of claim 13, wherein the at least one special control key has a predetermined report rate different from that of the key being simulated.

Claim 15. The input apparatus of claim 1, wherein the plurality of keys are operated to change a key mapping by programming the nonvolatile memory.

Claim 16. The input apparatus of claim 1, wherein the nonvolatile memory is programmed with a command thereto by operating the plurality of keys.

Claim 22. The input apparatus of claim 1, further comprising a display connected to the microprocessor to display a content stored in the nonvolatile memory.

Claim 23. The input apparatus of claim 1, further comprising an application software program executing external to the keyboard to communicate with the microprocessor.

Claim 24. The input apparatus of claim 23, wherein the application software program is used to program the nonvolatile memory.

Claim 25. The input apparatus of claim 23, wherein the application software program is used to perform a function programmed in the nonvolatile memory.

Claim 26. A method for operating a programmable input apparatus with a keyboard, the keyboard having a microprocessor, a nonvolatile memory and a transmission arrangement, the keyboard having a plurality of keys and at least one special key, the method comprising the steps of:

detecting a trigger signal of a key of the keyboard;

storing a first data into the nonvolatile memory when the trigger signal is a programming signal;

transmitting a normal data corresponding to the trigger signal external to the keyboard by the transmission arrangement when the trigger signal is a normal keying signal;

reading a second data corresponding to a programmed key from the nonvolatile memory and/or executing a function corresponding to the second data when the trigger signal matches the programmed key; and

programming the special key to simulate a cursor control device and changing a reporting rate of the special key to be different from that of other of the plurality of keys to coincide with requirements of the cursor control device.

EVIDENCE APPENDIX

RELATED PROCEEDINGS APPENDIX

None.

APPLICATION DRAWINGS APPENDIX

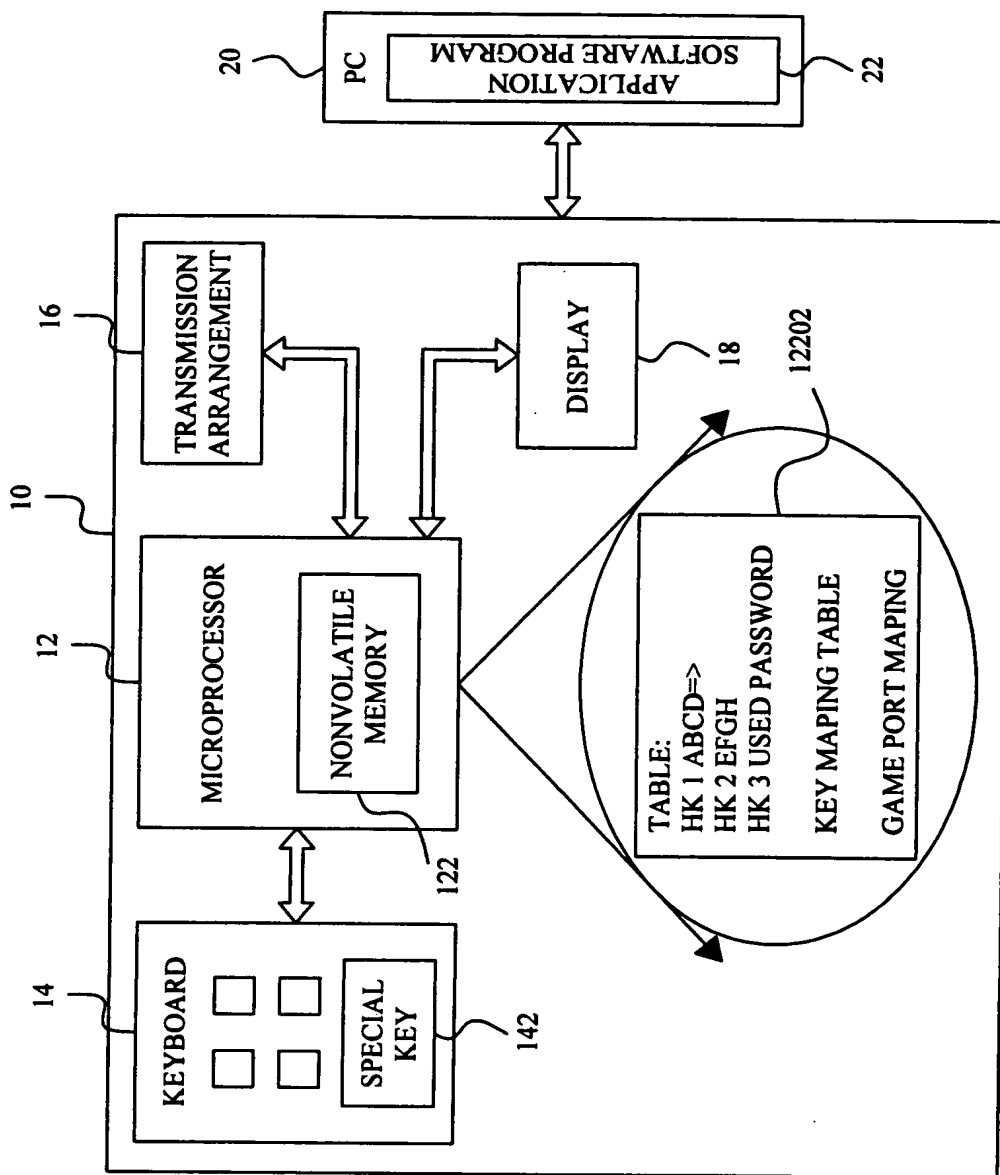


Fig. 1



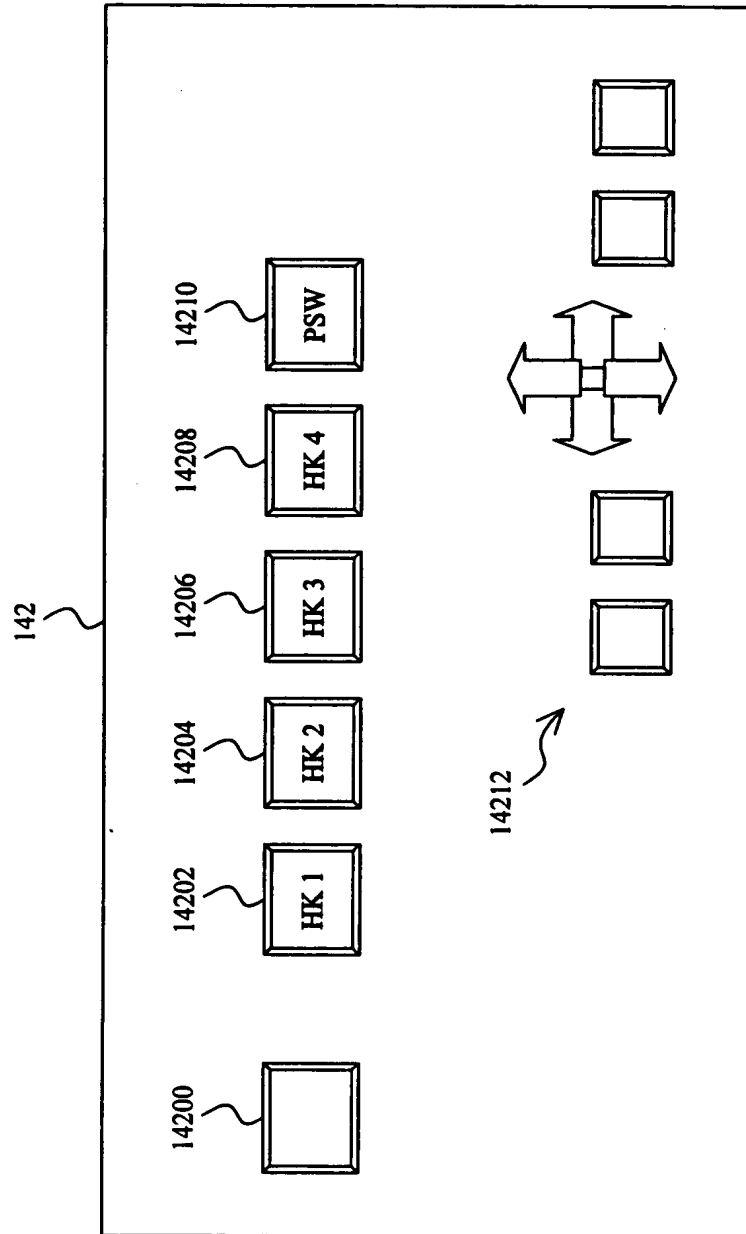


Fig. 2